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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,598	08/18/2003	Klaus Wissing	FA1090USNA	5074

23906 7590 03/24/2006

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EXAMINER	
TSOY, ELENA	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,598	WISSING ET AL.	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/02/2006 has been entered.

Response to Amendment

Amendment filed on 3/02/2006 has been entered. Claims 1-6, and 9 are pending in the application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al (US 5,780,530) in view of Kim (US 4,983,247), further in view of Gaglani (US 5,312,943).

Mizutani et al disclose a process for coating various substrates used in cars, building roofs and walls (See column 14, lines 47-51) such as a fiber-reinforced plastics (FRP), metal sheets, artificial marble and slate (See column 14, line 38), which comprises the steps of applying a coating composition directly to the substrate (as a primer) or over a primer (See column 14, lines

26-27) using two coats/two bake method (i.e. curing the primer by baking; applying the coating composition and curing the applied coating by baking) at 140^0C to 240^0C (See column 14, lines 28-31). Mizutani et al teach that depending upon intended application, the coating composition may contain (electrically conductive) carbon black, iron oxide, metal powders such as aluminum powder (See column 13, lines 60-65).

Mizutani et al fail to teach that the substrate is a wing, bonnet, boot lid, door or mirror housing (Claim 1).

Kim teaches that FRPs such as glass (See column 3, lines 28) reinforced polycarbonate (See column 3, line 33) can be advantageously used for making car doors (See column 1, lines 37-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a method of Mizutani et al for coating any substrates including car doors made of FRP such as glass reinforced polycarbonate since Mizutani et al teach that their method is useful for coating FPR in car fields, and Kim teaches that FRPs such as glass reinforced polycarbonate can be advantageously used for making car doors.

Mizutani et al in view of Kim fail to teach that the primer is a dual cure coating composition comprising a polyurethane binder having *moisture* curable alkoxysilane groups and photocurable C=C double bonds wherein equivalent weight of C=C double bond in the polyurethane binder is within range of 200 to 2000 and a content of silicon bound in alkoxysilane groups is within 1 to 10 wt %; and the primer is cured by UV-radiation (Claim 1).

Gaglani teaches that a resin coating composition comprising a polyurethane binder of Formula I having both radiation curable olefinic double bonds and condensation curable trialkoxysilane groups (See column 3, lines 12-25) after curing **UV radiation** and by exposure to

moisture (See column 9, lines 19-23) under conditions of ambient temperature and humidity (See column 4, lines 17-26) provides a ***repairable*** coating having **excellent adherence** to ***plastics*** and ***glass*** (See column 13, lines 46-48). The resin has C=C equivalent weight of the total resin solids content of 579 and Si content of 7.2 wt % (See column 10, lines 49-63, Formula (Ia) ($C_{41}N_4Si_3O_{18}H_{98}$) having M.W. of 1158). Gaglani teaches that the resin composition may be used *primarily* over electronic circuit boards (See column 4, lines 35-37), e.g. automobile printed circuit boards (See column 1, lines 10-12). However, the resin composition may also be used as coatings on ***various*** **substrates** including, but not limited to, **glass**, ceramic, concrete, metal, **plastic**, brick, paper, cardboard, wood, resilient flooring, e.g., vinyl and vinyl-asbestos tile and vinyl sheet goods, and the like (See column 4, lines 43-48) and provides **excellent adherence** to ***plastics*** and ***glass*** (See column 13, lines 46-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a dual cure coating composition of Gaglani as primer in Mizutani et al in view of Kim and have cured the primer by UV-radiation with the expectation of providing the desired strong adhesion to the FRP substrate since Gaglani teaches that a dual cure coating composition comprising a polyurethane binder of Formula I having moisture curable trialkoxysilane groups and photocurable olefinic double bonds provides after UV-curing excellent adhesive properties to glass and plastics such as polycarbonate.

It is the Examiner's position that popping and blistering in the thermally top coat would be suppressed because the top coat is applied by a process substantially identical to that of claimed invention, namely, over radiation and moisture cured primer comprising the same main components as claimed primer composition.

3. Claims 1-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al in view of Kim, further in view of Wu et al (US 6,039,872) and Chu et al (US 6750309).

Mizutani et al disclose a process for multi-layer coating of substrates used in cars, building roofs and walls (See column 14, lines 47-51) such as a fiber-reinforced plastics (FRP), metal sheets, artificial marble and slate (See column 14, line 38), which comprises the steps of applying a coating composition directly to the substrate (as a primer) or over a primer (See column 14, lines 26-27) using two coats/two bake method (i.e. curing the primer by baking; applying the coating composition and curing the applied coating by baking) at 140^0C to 240^0C (See column 14, lines 28-31). Mizutani et al teach that depending upon intended application, the coating composition may contain (electrically conductive) carbon black, iron oxide, metal powders such as aluminum powder (See column 13, lines 60-65). The coating layer is formed from a coating composition comprising a binder system containing about **97 %** of silicone polyol resin (See column 6, line 33) and 3 % of other polyol (See column 6, lines 32-34) such as **acrylic** polyol having a plurality of alkoxy group-containing pendant groups (See column 3, lines 51-53) with three alkoxy groups attached to the same silicon atom (See column 3, lines 58-59). The coating composition may contain coloring pigments depending on intended application (i.e. may be clear coating composition) (See column 13, lines 60-61). The silicone polyol resin is an organopolysiloxane having at least two **hydroxyl** groups in the molecule, the unit of which is represented by the general formula: $(R_a)_n (R_b)_m Si(O)_{(4-n-m)/2}$, wherein R_a is C_1-C_{20}- ***alkoxy*** or a monovalent C_2-C_{200} organic group containing carbon-carbon unsaturated function in the chain; R_b is a monovalent organic group having a terminal hydroxyl group and containing carbon-carbon unsaturated function in the chain; m and n are each a positive real number satisfying the relationship of $0<n<4$ (i.e. includes claimed 3 alkoxy groups); $0<m<4$ and $2<n+m<4$ (See column 5, lines 47-64). It is

the Examiner's position that the carbon-carbon unsaturated function includes C=C double bond. Clearly, equivalent weight of carbon-carbon unsaturated functions including C=C double bond in the organopolysiloxane is within claimed range of 200 to 2000 and a content of silicon bound in alkoxysilane groups is also within claimed range of 1 to 10 wt-%.

It is the Examiner's position that the coating comprising alkoxysilyl groups cures upon exposure to air humidity by forming siloxane bridges under the action of moisture.

Mizutani et al fail to teach that the substrate is a wing, bonnet, boot lid, door or mirror housing (Claim 1).

Kim teaches that FRPs such as glass (See column 3, lines 28) reinforced polycarbonate (See column 3, line 33) can be advantageously used for making car doors (See column 1, lines 37-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a method of Mizutani et al for coating any substrates including car doors made of FRP such as glass reinforced polycarbonate since Mizutani et al teach that their method is useful for coating FPR in car fields, and Kim teaches that FRPs such as glass reinforced polycarbonate can be advantageously used for making car doors.

Mizutani et al in view of Kim fail to teach that the primer is cured by UV-radiation and moisture instead of heat and moisture (Claim 1).

Wu et al teach that the application of *any* conventional energy source such as heat, ultraviolet light, gamma radiation, electron beam radiation initiates free radical polymerization of C=C double bonds (See column 12, lines 24-28). In other words, Wu et al teach that radiation is functionally equivalent to heat to initiate free radical polymerization of C=C double bonds.

Chu et al teach that a coating composition comprising a polyurethane (See column 1, line 63) binder of Formula I having *moisture* curable alkoxysilane groups and photocurable acrylated end-caps to a substrate (See column 2, lines 3-6), which is particularly useful as **adhesive** coating in the electronic, *automotive*, industrial and consumer fields (See column 2, lines 6-11), may be cured by UV-radiation (See column 17, lines 50-51). The coating has excellent adhesive properties to glass and plastics such as polycarbonate (See column 17, lines 63-65) after curing under UV-radiation (See column 17, lines 50-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV-radiation, gamma radiation, or electron beam radiation for curing the primer in Mizutani et al in view of Kim instead of heat with the expectation of providing the desired strong adhesion to the FRP substrate since Wu et al teach that radiation is functionally equivalent to heat to initiate free radical polymerization of C=C double bonds and Chu et al teach that a coating composition comprising a polyurethane binder of Formula I having moisture curable alkoxysilane groups and photocurable acrylated end-caps may be cured by UV-radiation to provide excellent adhesive properties to glass and plastics such as polycarbonate in automotive fields.

It is the Examiner's position that popping and blistering in the thermally top coat would be suppressed because the top coat is applied by a process substantially identical to that of claimed invention, namely, over radiation and moisture cured primer comprising the same main components as claimed primer composition.

4. Claims 1-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al in view of Kim, further in view of Wu et al and Gaglani.

Mizutani et al, Kim and Wu et al are applied here for the same reasons as discussed above in § 3.

Gaglani is applied here for the same reasons as discussed above in § 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV-radiation for curing the primer in Mizutani et al in view of Kim instead of heat with the expectation of providing the desired strong adhesion to the FRP substrate since Wu et al teach that radiation is functionally equivalent to heat to initiate free radical polymerization of C=C double bonds and Gaglani teaches that a coating composition comprising a polyurethane binder of Formula I having moisture curable trialkoxysilane groups and photocurable double bonds may be cured by UV-radiation to provide excellent adhesive properties to glass and plastics such as polycarbonate.

It is the Examiner's position that popping and blistering in the thermally top coat would be suppressed because the top coat is applied by a process substantially identical to that of claimed invention, namely, over radiation and moisture cured primer comprising the same main components as claimed primer composition.

5. Claims 1-3, 6, 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al (US 20030109595) in view of Persson et al (US 6,358,626), further in view of Gaglani (US 5,312,943) for the reasons of record set forth in paragraph 3 of the Office Action mailed on 11/21/2005 because it is the Examiner's position that popping and blistering in the thermally top coat would be suppressed because the top coat is applied by a process substantially identical to that of claimed invention, namely, over radiation and moisture cured primer comprising the same main components as claimed primer composition.

6. Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al in view of Persson et al, further in view of Gaglani, and further in view of Bergstrom et al (US 6,384,125) for the reasons of record set forth in paragraph 4 of the Office Action mailed on 11/21/2005.

7. Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al in view of Persson et al, further in view of Gaglani, and further in view of Mizutani et al for the reasons of record set forth in paragraph 5 of the Office Action mailed on 11/21/2005.

Response to Arguments

8. Applicant's arguments with respect to claims 1-6, and 9 have been considered but are moot in view of the new ground(s) of rejection.

9. As to rejection over Okada et al, Persson et al and Gaglani.

Applicants' arguments filed March 2, 2006 have been fully considered but they are not persuasive.

(A) Applicants argue that none of Okada et al, Persson et al and Gaglani references alone or in any combination teach or suggest Applicants' invention and in particular do not recognize the problem solved by Applicants' novel process of suppressing blister and popping defects in a topcoat applied over a fiber reinforce plastic automotive substrate. Nowhere is this problem even mentioned in these cited references. Okada only teaches the use of an acrylic resin that has attached thereto through a urethane linkage polymerizable unsaturated group and does not show or teach the polyurethane binder containing moisture curable trialkoxy silane groups as set fodh in the amended claims. Persson only teaches that coatings can be applied to reinforced plastic autobody parts but as recognized by the Examiner does not show the polyurethane

binder having C=C double bonds for radiation curing and trialkoxy silane groups for moisture curing. Gaglani is primarily directed to applying coatings over electronic printed circuit boards but not the fiber reinforced plastic automotive parts which is Applicants' process. Nor does Gaglani recognize the problems solved by Applicants' process, i.e., the suppression of popping and blistering in the top coat applied to a primed fiber reinforced automotive substrate.

The Examiner respectfully disagrees with this argument. Okada et al disclose a process of coating an automobile body (See P2), the method comprising applying a photocurable primer composition comprising unsaturated acrylated polyurethane (See P8), curing the primer by UV-radiation (See P62) and applying a top coat onto the cured primer and thermally curing the top-coat (See P64). Persson et al teach that within the field of ***conventional*** exterior autobody parts for motor vehicles, for example boot lids, autobody parts of body panel sheets or, for example, of **glass**-fibre reinforced thermosetting **plastic** are previously known (See column 1, lines 43-46).

Therefore, it would have been obvious to have used autobody parts of body panel made of **glass**-fibre reinforced thermosetting **plastic** because Okada et al do not limit material of the parts.

Gaglani teaches that a resin coating composition comprising claimed polyurethane binder provides **excellent adherence** to ***plastics*** and ***glass*** (See column 13, lines 46-48).

Therefore, one of ordinary skill in the art would have reasonable expectation of success in using a resin coating composition of Gaglani as a primer for coating **glass**-fibre reinforced thermosetting **plastic** part of Okada et al in view of Persson et al to provide **excellent adherence** because Gaglani teaches that a resin coating composition comprising claimed polyurethane binder provides **excellent adherence** to ***plastics*** and ***glass.***

As to the suppression of popping and blistering in the top coat applied to a primed fiber reinforced automotive substrate, the fact that applicant has recognized another advantage which

would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

(B) Applicants argue that Bergstrom is not even remotely related to Applicants' novel coating process but is directed towards making a modified silica filler. Bergstrom simply does not relate to Applicants' process or to the processes disclosed by Gaglani or Okada. Bergstrom discloses the curing of silicone sealants, which are not coating compositions, and mentions that hydroxyl containing radicals can be present. There is no motivation to combine Bergstrom with Okada or Gaglani. The Examiner has used Applicants' own invention as a blue print in an attempt to reconstruct Applicants' novel process from the art. Without the guidance of Applicants' disclosure, one skilled in the art would never look to Bergstrom which is entirely unrelated to Applicants' novel process. This rejection based entirely on hindsight reconstruction must be withdrawn.

Bergstrom is applied mainly as evidence to confirm what ordinary skill in the art knows well: alkoxysilane groups (-Si(OR) hydrolyze first with the formation of hydroxyl groups (SiOH groups), then the formed hydroxyl groups condensate forming siloxane bonds. Therefore, it would have been obvious to have substituted some of alkoxy groups in Gaglani with hydroxyl groups with the expectation of providing the desired siloxane condensate.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure,

such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ELENA TSOY
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Primary Examiner
Art Unit 1762

March 17, 2006